Division of REMEDIATION

Bureau of Remediation and Waste Management

Annual Report

March 2000

Topics of Interest

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The Year in Review – 1999

Division staff have tackled some complex and difficult sites this year. Innovative removals / cleanup actions are on-going at federal Superfund sites like Saco Landfill, Loring Air Force Base, Eastland Woolen Mill in Corinna and Eastern Surplus in Meddybemps. State site cleanups have used innovative remedies like the slurry-walls and ground water diversion systems at the Sanford Municipal Landfill to protect ground water and clean up surface water in a cost-effective manner. At times, however, nothing works better than removing the source of contamination. Sites like New England Pole in Yarmouth, Tory Hill in Buxton, the Millington Sites in Lincolnville, Naval Computer and Communication Station in Cutler, and Fayscott in Dexter completed contaminated soil removals to protect the public's health and safety.

Since its inception in 1993, the Voluntary Remediation Action Plan (VRAP) program has examined over 200 sites for cleanup and reuse. Our EPA "Brownfields" grant allows us to inform people through newsletters and meetings and to assist municipalities in the investigation and marketing of contaminated sites for future use. The first two issues of the Maine VRAP/Brownfields Newsletter were published this year and issue three is at the printers. Call to get on our mailing list or download them from our webpage (see back page).

This year marked the end of the closure portion of the Municipal Landfill Closure and Remediation Program. A total of 367 municipal landfills were closed during the 12 year program. Municipalities received over $75 million for the work that was completed. Most were reimbursed 75% of their costs. This year the final 19 landfills were closed at a state cost share of over $3.4 million. Over 1,725 acres of landfills had been closed statewide by the end of 1999, including 167 acres this year alone.

The dirt really "moved" this year, as we completed cleanup at a large number of underground tank sites, municipal landfills, Superfund sites, state uncontrolled hazardous substance sites, federal sites, and private sites. A number of long-term underground tanks sites were successfully closed out this year. Emergency removal of hazardous materials at sites in Lincolnville, Bowdoin, Randolph, Gorham, and Addison protected the public from immediate health threats.

The Division's Annual Report, Site Lists, the Oil Contaminated Ground Water Remediation Action Levels (Decision Tree), and the draft Soil Cleanup Guidelines are available on the DEP Homepage. These documents and our Risk Assessment Guidance for Hazardous Substance Sites are also available by mail. We look forward to another challenging year.

— Mark Hyland, Division Director

Uncontrolled Sites Program

Many times when people think of the Uncontrolled Sites Program (USP) it is the high profile field response actions which come to mind. Not to detract from the significance of these events, USP activities also include: technical document review, legal agreement and contract negotiation, event documentation, cost audit and tracking, inquiry response, training, testimony preparation for public meetings and the legislature, program development, and program oversight. These behind-the-scene activities are important USP elements. USP project managers are well rounded and have the ability to work in teams to effectively deal with diverse, sometimes complicated technical/legal issues and/or situations involving constituents from single home owners to major national corporations. The USP would also like to acknowledge the support and contribution of Technical Services geologists, engineers and Department of Attorney General, Assistant Attorney General, Dennis Harnish.

Significant events for the USP were: Sanford Landfill, completion of Phase III (see article); New England Pole and Treatment, completion of remedial actions (see article); Portland Bangor Waste Oil, Wells, negotiation and final agreement of a multiparty consent decree; Wyman Auto Body, completion of remedial investigation and feasibility study; Millington Enterprises, Lincolnville, completion of removal actions; and, Saco Tannery Pits, Saco, delisting from Superfund. Finally, in November voters supported a $1,000,000 bond request.

— Hank Aho, Unit Leader

New England Pole & Treating Company, Yarmouth

December 28, 1999. The early morning hours of this day saw the last trailer-dump truck departing the site. Two and one-half months of nearly continuous activity (weather permitting) were required to excavate, load, transport and dispose of the 13,425 tons of pentachlorophenol, dioxin and creosote contaminated soils.

Dioxin, an incidental contaminant of the wood-preservative pentachlorophenol (Penta or PCP), was the primary contaminant of concern at this site. Both chemicals were released in minute quantities into the soils for over forty years. It is theorized that the open storage of treated utility poles allowed the elements to wash trace amounts of the chemicals from the poles, depositing them into the soil beneath the poles. It is also likely that the handling of the poles (lifting them off the railcars that brought them to the site, stacking the poles in large piles, and later lifting and placing them on flatbed trailers) allowed small bits of treated wood to rub off the poles and mix with the underlying soil.

Fleet Environmental excavator operator loads a trailer dump truck with contaminated soils.

The final remedy agreed to by the State, the Responsible Party Group, the municipality and the local residents consisted of the removal and off-site disposal of the pentachlorophenol, dioxin and creosote contaminated

soils. This action required more than 400 trailer-dump trucks to transport the soils to a secure landfill. An additional 900 truckloads of clean backfill and topsoil were required to restore the site's topography.

In mid-December a heavy creosote contaminated layer of soil was exposed in the northeast portion of the site.

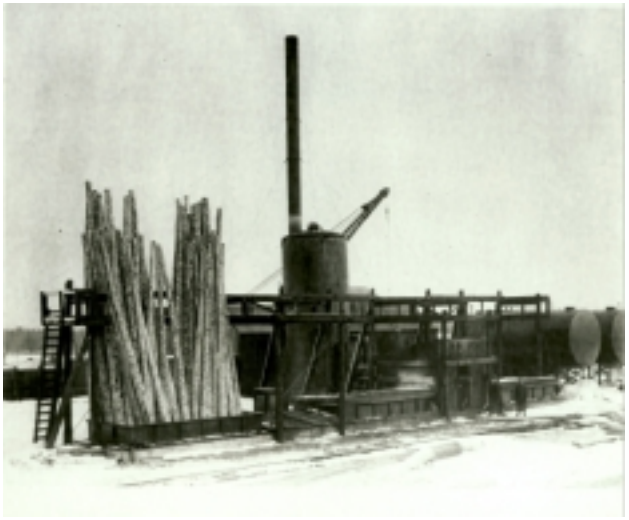
Fleet Environmental (formerly Seacoast Ocean Services) conducted the site cleanup with E/PRO Engineering and Environmental Consulting performing construction management for the Responsible Party Group. Drumlin Environmental oversaw documentation sampling, soil analysis and quality control.

Sixty years or more after the previous photo, the creosote dip tanks are demolished and removed from the site.

Site Facts/Operational History

The 15-acre site is part of a 55-acre parcel owned by Central Maine Power Company. The Responsible Party Group consists of CMP as site owner with Beazer East and Koppers Industries as former site operators. The site was the location of a former utility pole storage and distribution yard operated for CMP from 1955 to 1996. The poles stored at the site were treated at off-site locations with wood-preserving compounds; namely, pentachlorophenol (PCP), chromated copper arsenate (CCA) or aluminum copper arsenate (ACA). Prior to its use as a pole distribution yard, wooden utility poles were treated on-site by means of a heated, non-pressure creosote dip facility. The pole treatment operation began in the mid-1920s and ended in 1954.

Pole Treatment Operations. The deed history and interviews with people familiar with the site indicated that American Forest Products Company initially developed the site in 1925-26 as a pole-processing site. The site ownership was transferred to the New England Pole & Treatment Company in April 1928. The original treatment process involved the use of several large aboveground creosote storage tanks that were located to the south of the former boiler plant. A heated, in-ground creosote dipping tank, 50 to 60 feet in length, was located to the west of the boiler plant. The heated tank was divided into three sections, each of which could accommodate about 40 poles. The poles were hauled to the dipping tank by a coal-fired, steam-powered, rail-mounted crane. The base (i.e., the butt or buried portion) of the poles was soaked in the heated creosote. Following creosote treatment, the poles were stored on site until shipped for use in the construction and maintenance of utility lines. The creosote dipping process is reported to have terminated in late 1954 while the site was owned by New England Pole & Treatment Co. The site investigation determined that a spill of several thousand gallons of creosote allegedly occurred in the late 1940's. The spilled creosote was apparently allowed to remain in place and solidify, then later covered with gravel fill.



The early half of the 20th Century saw thousands of utility poles receiving creosote treatment at this distinctive operational site. The cold creosote storage tanks are visible in the right background.

(Photo courtesy of Central Maine Power Company)

Pole Storage Operations. The site ownership was

transferred to CMP in January 1955. The Koppers Company, (now known as Beazer East), operated the site from early 1955 to late 1987 as a pole storage and distribution yard. Koppers Industries assumed operations of the facility in January 1988. PCP, CCA and ACA treated poles that were produced at off-site locations were delivered by train or truck, then off-loaded and stored at the site. These poles were later redistributed to other areas in Maine as needed. During peak operations, thousands of poles would be stored on site. Koppers ceased storing poles on the site in December 1995, closing all operations in April 1996.

Post-remedial plans call for the site to be allowed to return to its pre-operational condition of wild growth and brushlands. *(Wayne Paradis)*

At the peak of storage operations, the yard could temporarily hold thousands of treated poles before shipping all over the state.

Sanford Municipal ("Rushton Street") Landfill

Years of effort by Division staff, Sanford town officials and interested citizens were rewarded in 1999 with the signing of an agreement to complete remedial activities at the Rushton Street Landfill (RSL) before the end of the year.

Development of acceptable remedial alternatives was complicated by the fact that the bottom of the RSL extends below the seasonal high groundwater table. As groundwater flows through the contents of the landfill, it becomes saturated with landfill contaminants, forming landfill leachate. This leachate is discharged into an adjacent tributary of the Mousam River.

A proposal to intercept leachate in an underground trench after it flowed out of the landfill then treat it on

The Southern Tributary looking from the western edge of the landfill in May 1995. Note discolored reddish-brown color water caused by iron from discharging leachate.

site was considered several years ago, but was finally rejected as inefficient and unnecessarily costly.

The key idea that led to the selection of the remedial action implemented this year was that contaminant transport to the tributary could be controlled by the elimination of the contact between groundwater and the landfill contents.

This idea provided the basis for the final phase of a three-phase remedial action plan put forward in 1997 by the Wardwell Peer Review Committee consisting of four

HAZMAT specialists from Clean Harbors, Inc. overpacking a recovered drum for storage, transport and eventual disposal.

University of Maine engineering faculty members organized and headed by Richard E. Wardwell. The Department approved the phased approach in early May 1997, and the Sanford Town Meeting appropriated funding for implementation of Phases I and II of the plan in late May.

Phase I of the Wardwell plan construction commenced in September 1997. Phase I consisted of: 1) regrading and recovering a seventeen acre portion of the landfill northwest of Rushton Street, and 2) installation of a subsurface drainage system on the east edge of the landfill to partially intercept groundwater flow through the landfill. In late September, while regrading the northwest face of the landfill, contractors discovered nine buried drums which were excavated and removed. Two

Trench being dug to a depth of 60 feet by a large, specially constructed excavator.

weeks later, in early October, a second cache of 293 drums was excavated and removed from the landfill.

A geophysical survey of the landfill was conducted in November as a follow up to drum removal to determine if additional drum caches could be located. Interlocking trenches excavated in five target areas yielded only eleven additional individual drums for removal. No additional drum caches were found.

Phase II of the Wardwell plan called for monitoring to determine the effectiveness of Phase I remediation. Phase II sampling in 1998 showed improved water quality in the Southern Tributary, but contaminant levels still exceeded State surface water quality standards.

Department representatives met with Sanford officials, consultants and attorneys in May 1999 to consider additional Phase III remedial alternatives. On the basis of these meetings and discussions, Drumlin Environmental and Sevee & Maher drafted a Focused Feasibility Study (FFS) for Departmental review in June. The Department approved the revised FFS in July. Concurrently, the Department and the Office of Attorney General negotiated an Administrative Order by Consent (AOC) with town attorneys. After several revisions negotiated in a series of meetings and conference calls over several months, the AOC was signed and executed on November 2, 1999. The AOC and funding for Phase III construction action was approved by the Sanford Town Meeting in November. The Department will participate in funding of Phase III through the Landfill Closure Program by way of reimbursements to Sanford beginning in 2000.

The alternative selected in the final FFS for Phase III site remediation features the construction of an upgradient groundwater diversion system consisting of a slurry wall and ten upgradient extraction wells. This system is designed to divert clean groundwater previously flowing through the landfill by pumping from the ten upgradient extraction wells and discharging to existing surface water bodies around the landfill's northeast and southeast perimeter, thus eliminating the formation of landfill leachate.

Excavation of the 1000-foot slurry wall trench on the northeast (upgradient) side of the landfill began in October and was completed in December 1999. Additional components of the Phase III remedial action completed in December included: 1) relocation of the demolition debris staging area from the landfill cap; 2) regrading of that portion of the landfill cap to the standard minimum 5% slope and covering with a standard clay cap; and 3) construction of roadside ditches tied into the landfill cover system to reduce infiltration along Rushton Street. Final construction details and minor corrective actions will be accomplished in the spring of 2000. The AOC calls for an evaluation of the effectiveness of these remedial actions in 2004. *(Frederick King)*

STATE LEAD CLEANUPS 1999 ACCOMPLISHMENTS

Investigations

Site investigations are conducted to characterize a site. They include such things as identification of contaminant source areas, determination of the nature of contamination, description of probable groundwater flow direction, and identification of potential receptors and potential pathways of off-site migration. A *remedial investigation* identifies and fills data gaps so that specific remedial alternatives can be evaluated. The *risk assessment*, performed in conjunction with a remedial investigation, is used to determine threats to human health and the environment posed by hazardous substances at a site, and can be used to establish cleanup

goals. The *feasibility study* identifies remedial action alternatives, establishes the process for evaluating an acceptable remedial action and ultimately selects the preferred alternative.

Site/Remedial Investigations took place at the following sites during 1999:

- Maine Leathers, Dover-Foxcroft
- Portland Bangor Waste Oil, Wells
- Lewis Wolman Company, Waterville
- Old Bonafide Dump, Winthrop
- Fayscott, Dexter
- Sanford Municipal Landfill, Sanford
- Olsky Landfill, Mexico
- Saco Tannery Pits, Saco
- Wyman's Auto Body, Gorham
- Millington Enterprises, Thurlow Road, Lincolnville
- Millington Enterprises, Norton Pond, Lincolnville
- Vahlsing Warehouse, Easton
- CGA, Inc., Sanford
- Pine Tree Shopping Center, Portland

Feasibility Studies at the following sites were conducted in 1999:

- Maine Leathers, Dover Foxcroft
- Sligo Road, North Yarmouth
- Wyman's Auto Body, Gorham
- Millington Enterprises, Thurlow Road, Lincolnville
- Sanford Municipal Landfill, Sanford

Human Health Risk Assessment

- Fayscott, Dexter

Remedial/Removal Actions

Remedial Actions include remedial design activities as well as the actual implementation of the remedial action. A *remedial design* is a detailed plan for the implementation of the selected remedial alternative. Remedial actions are classified as source control or management of migration (groundwater control) activities. *Removal Actions* are often time-critical partial cleanup activities, usually involving the physical removal of source contaminants from a site.

Remedial actions underway in 1999 include:

- GTE-Waldoboro, Waldoboro
- Rumford National Graphics, Belfast
- Farwell Mill, Lisbon
- Tex Tech Industries, North Monmouth
- Allen's Garage, North Jay
- Sanford Municipal Landfill, Sanford
- Wilner Wood Products, South Paris
- Eastland Woolen Mill, Corinna

Removal actions implemented in 1999 include the following sites:

- Millington Enterprises, Thurlow Rd., Lincolnville
- Fayscott, Dexter
- New England Pole and Treating Co., Yarmouth
- Pine Tree Shopping Center, Portland

Operations and Maintenance/Monitoring

Operation and Maintenance (O&M). O&M activities continued at the Miltonia Management Site in Acton which included inspections of the cap and lagoon dikes and sampling of nearby residential wells. O & M activities at the Saco Tannery Pits Superfund Site included site inspection, semiannual groundwater monitoring and sediment sampling. Annual inspection of the enhanced wetland constructed at the Dauphin Site in Bath was performed. Semi-annual groundwater and surface water sampling was conducted at the Dauphin Site in accordance with the long term monitoring plan. Long term monitoring was implemented this fall at the Wilner Wood Landfill Site in Paris. Semiannual residential and monitoring well sampling continued at Peterson's Farm Store, Colby, Engineering Industries, Norway and Blackstrap Road, Cumberland.

Residential Well Monitoring. Division staff continued to conduct periodic monitoring of groundwater in residential wells, and where necessary, maintained carbon filters in the vicinity of the following sites:

- Miltonia Management, Acton
- Portland Bangor Waste Oil, Wells
- Blackstrap Road, West Cumberland
- Boggy Brook Voc. Center, Ellsworth
- Robbins Property, Ellsworth
- Peterson's Farm Store, Colby
- Harris Road, Cumberland

- Eastland Woolen Mill, Corinna
- Wyman's Auto Body, Gorham

Division staff continued to oversee private parties' monitoring of residential wells in the vicinity of the following sites:

- Tex Tech Industries, North Monmouth
- GTE Products Company, Waldoboro

Ground Water Monitoring. Division staff continued to conduct periodic sampling of monitoring wells at the following sites:

- Blackstrap Road, West Cumberland
- Waterboro Patent Corp., Waterboro
- Aroostook State Farm, Presque Isle
- Peterson's Farm Store, Colby
- Engineering Industries, Inc., Norway
- Saco Tannery Pits, Saco
- Allen's Garage, North Jay
- Seaway Boats, Route 202, Winthrop
- Portland Bangor Waste Oil, Wells
- Hooper Sands Road Site, South Berwick
- Wilner Wood Landfill, South Paris

Other Technical and Analytical Data. Division staff continued to review technical and analytical data submitted by other parties at the following sites:

- Dauphin Landfill, Bath
- Farwell Mill, Lisbon
- GE Buildings #10 & #30, Bangor
- GTE Products Corporation, Waldoboro
- N. Berwick Municipal Garage, North Berwick
- Rumford National Graphics, Belfast
- Tex Tech Industries, North Monmouth
- Olsky Site, Mexico
- New England Pole, Yarmouth
- Wolman Steel, Waterville
- Old Bonafide Dump, Winthrop
- Leeds Metal, Leeds
- Saco Tannery Pits, Saco
- Pine Tree Shopping Center, Portland
- D&S Corporation/Koch Materials, Bangor

Other Related Activities:

Negotiations with responsible parties were held for Portland Bangor Waste Oil, Wells; Fayscott Company, Dexter; New England Pole and Treating Company, Yarmouth; and Sanford Municipal Landfill, Sanford.

Meetings with municipal officials, the public and/or concerned citizens. Meetings were held with/or in Corinna, Gorham, Lincolnville, Dover-Foxcroft, Wells, Yarmouth, and Sanford.

Agreements: An agreement was finalized with Sanford Municipal Landfill, Sanford, and a second amendment to the Administrative Consent Order and Agreement was finalized for the Silvex, Inc./Maine Metal Finishing site, Gorham. A multiparty consent decree was negotiated for the PBWO, Wells site. Due to the large number of participating parties, this consent decree was not finalized by the end of 1999.

Contractor work was performed in regard to Wilner Wood Products, South Paris; Portland Bangor Waste Oil, Wells; Seaway Boats, Winthrop; Wyman's Auto Body, Gorham; Allen's Garage, North Jay and Millington Enterprises, Lincolnville.

Cost recovery funds were received from responsible parties for North Berwick Municipal Garage, North Berwick; Rumford National Graphics, Belfast; GE Buildings #10 & #30, Bangor; Silvex/Maine Metal Finishing, Gorham; Dauphin Landfill, Bath; and, Fayscott Company, Dexter. Cost recovery efforts continue for Saco Tannery Pits, Saco; Central Chemical Co., Greene; Seaway Boats, Winthrop; and Southern Maine Finishing in Waterboro.

Activity with federal agency. DEP worked with USEPA to coordinate a non-time-critical removal action and to transition investigative activities at the Eastland Woolen Mill, Corinna, from State to Federal oversight. DEP concurred with EPA in de-listing Saco Tannery Pits Superfund Site from the NPL. In coordination with EPA, DEP conducted confirmation sampling at the Pinette's Salvage Yard Superfund site.

Land Use Restrictions. DEP instituted restrictive covenants on the former Silvex/Maine Metal Finishing property in Gorham.

Petroleum Hydrocarbon Remediation Program

Responsibility for the implementation of Maine's Petroleum Hydrocarbon (Oil) Remediation Program is shared among four Divisions which operate within the Bureau of Remediation and Waste Management. The Remedial Planning Unit (RPU) is staffed by three (3) Environmental Specialists who have diverse job functions. Most importantly, we manage DEP-led clean-up efforts at the state's highest priority and most complex oil contamination cases. Other responsibilities include the management and contracting oversight of remedial services, involvement with Bureau-wide procurement efforts, development of pre-qualified lists for various trades that we commonly utilize and the selection of the FASTRACK Consultants List, which is used by many Bureau staff. Oil Remediation Program staff are currently "brainstorming" on ways in which to effectively reduce the large backlog of projects that are listed on our Petroleum Hydrocarbon Remediation Site Priority List.

During 1999 the RPU has managed the successful completion of fourteen (14) high priority petroleum hydrocarbon contamination cases. We are currently managing remedial efforts at more than thirty (30) contaminated sites that are located throughout the state. Sites range in complexity from recovering petroleum product releases and replacement of impacted residential water supplies, to regional contamination issues where entire villages are suffering from petroleum hydrocarbon contaminated groundwater and overstressed aquifers. We have hired many private sector vendors with a total contract dollar value of $3.7 million according to Spill Site Tracking System (SSTS) records. We continue to increase our reliance upon the skills of private contractors, tradesmen and the FASTRACK consulting community.

During 1999 RPU staff revised and updated the Program's FASTRACK Consultants List for Petroleum hydrocarbon Remediation.

The Bureau's Division of Response Services typically is the initial DEP responder to a spill site. Most sites that are referred to Program staff are closed before the need to refer the project to the Technical Services Division and likewise to our RPU staff. Other related activities undertaken by the Petroleum Hydrocarbon Remediation Program include the management of the DEP's Point-of-Entry (POE) water treatment and filtration program, which provides protection and monitoring for approximately 1,100 drinking water supply wells located throughout the state.

Below is a representative sampling of the RPU's 1999's remedial activities. Note that each project has had hydrogeological investigations and remedial actions that the team felt were the best actions to take at the site. Please note how well we accomplished objectives that were established in last year's annual report. We have included our clean-up objectives for 2000. This year we have also included cost figures on many of our "representative" projects. That information was gleaned from the Bureau's electronic Spill Site Tracking System (SSTS). These brief project descriptions document the diverse and typical efforts that RPU managers use to protect human health and the environment.

— Tom Benn, Unit Leader

Remedial Project Descriptions

Tomisak Property, Addison

1999 Accomplishments: Successfully completed water quality monitoring of all replacement wells. Closed site.

Odlin Road, Bangor

1999 Accomplishments: Completed construction of waterline extension. This project had shared responsibility with VRAP staff. We hired a FASTRACK Consultant and extended the public drinking water supply to serve six (6) impacted or threatened properties. Recently closed site.

Costs: Program has been reimbursed for our remedial expenses, totaling $20,274.10.

Groveville Service Center, Buxton

1999 Accomplishments: Shut down SVE/sparge remediation system. Monitored site conditions.

2000 Objectives: Dismantle system, abandon wells and close site.

Costs: Program has spent $248,389.50 to date. An estimated additional $10,000.00 is needed to close the case.

Tory Hill Site, Buxton

1999 Accomplishments: Completed a major excavation; ~ 5,000 yds^3 of contaminated soil was removed. Completed the design and construction of a groundwater treatment system. Project staff and our consultant have held several public information meetings with local officials and members of the public.

2000 Objectives: Monitor residential drinking water supplies and operate the groundwater treatment system that is presently being constructed.

Costs: Program has spent $724,888.88 to date.

Coastal Environmental conducting excavation operations, Tory Hill Site, Buxton

Tory Hill Site excavation operations, Coastal Environmental Consultants

Tory Hill Site, Buxton. Close-up of excavation.

Kennebec Quik Stop, Chelsea

1999 Accomplishments: Monitored the store's well and several area residents' drinking water supplies.

Costs: Program has spent $141,859.81

East Pittston

1999 Accomplishments: Installed an iron removal treatment system on the DEP's replacement public drinking water supply.

East Madison Store

1999 Objectives: Continue to test the water quality at the store for two (2) sampling events, then close out the site.

Friendship, Cushman & Sandblom, Friendship

1999 Accomplishments: Closed the site.

Pete's Garage, Fryeburg

1999 Accomplishments: Completed monitoring of the six (6) wells that have been replaced at the site. Final site closure awaits property appraisal work and completing several administrative issues.

Pelkie's Store, Fryeburg

1999 Accomplishments: Project remediation is complete. Cost recovery action is being contemplated by Third Party Damage Claim staff.

Costs: Program has spent $712,976.72

Lowell Cove Remediation, Harpswell

1999 Accomplishments: Investigated sampling methodology and installed PVC "fittings." Diesel Range Organics (DRO) results were false-positive!

2000 Objectives: Continue to operate and maintain POE filtration on impacted residential water supplies.

Costs: Program has spent $439,272.68 to date.

Bessey et al., Hinkley

1999 Accomplishments: Two (2) drinking water wells were found to be contaminated. Remedial efforts are being implemented.

Costs: Program has spent $90,451.76.

Moosebec & Jonesport-By-The-Sea, Jonesport

1999 Accomplishments: Closed the case with the assistance from Bangor Regional Office Engineer Phil Winchester.

Costs: Program has spent $170,076.55

Lee Village Remediation, Lee

1999 Accomplishments: Monitored residential water supplies, purchased POE filtration for three (3) residential water supplies.

2000 Objectives: Close the site in January.

Costs: Program has spent $404,901.73 to date.

Koobs Garage, et al., Oquossoc

1999 Accomplishments: Continued residential sampling, conducted public informational meetings, monitored site contamination and worked with Water District on long term implementation of replacement drinking water utility. DEP is awaiting the granting of access by the Department of Fish and Wildlife; numerous requests for property access have been made.

2000 Objectives: Continue meetings with Water District Trustees and local residents.

Costs: Program has spent $75,587.00.

Canton Residence, Phillips

1999 Accomplishments: Sampled new residential well and recovery well in May.

2000 Objectives: Schedule abandonment of the recovery well and close the site.

Costs: Program has spent ~$2,000.00 to date.

Anderson & Small Remediation, Richmond

1999 Accomplishments: Monitored residential water supplies, finding one (1) with contamination greater than 50 parts per billion (ppb).

2000 Objectives: Conduct two (2) additional sampling rounds. Planned for closure in the Fall.

Costs: Program has spent $186,908.10 to date.

Searsmont Village LUST, Searsmont

1999 Accomplishments: Completed negotiations with Downtown Searsmont Aqua Association on amount for water system operational subsidy.

2000 Objectives: Deliver funds and close site.

Costs: Program has spent $211,819.31 to date.

S & M Cash Market, South China

1999 Accomplishments: Continued to operate groundwater treatment system.

2000 Objectives: Continue to operate treatment system and investigate remedial options for the site.

Costs: Program has spent $720,792.58 to date.

Long Cove, St. George

1999 Accomplishments: Sampled neighborhood, installed and maintained ten (10) granular activated carbon (GAC) filter systems on contaminated residences.

2000 Objectives: Evaluate remedial options for the site.

Costs: Program has spent ~$20,000.00 to date.

Village Remediation, Tenants Harbor

1999 Accomplishments: Sampled drinking water supplies in the village twice. Provided GAC filtration on homes found to be impacted, bringing the total number of "filtered" properties to ninety-four (94). We have operated several groundwater treatment systems in the village. Conducted long-term pump test of replacement wells that will serve the community, and commenced Preliminary Design of the replacement utility. Staff conducted an informational meeting for the public in the spring and published a Tenants Harbor Waterline Newsletter at the end of year.

2000 Objectives: Continue village monitoring and GAC installations; complete the design of a municipal drinking water system; purchase land where the municipal wells are located; establish a protection zone; finally, contract with a construction firm to build the replacement system.

Costs: Program has spent $1,786,012.06 to date.

Hilltop Store, Thorndike

1999 Accomplishments: Purchased and installed POE filter system for the store and installed a second well.

2000 Objectives: Close the site.

Costs: Program has spent $270,245.69.

Murray Oil Remediation, Turner

1999 Accomplishments: Sampled impacted residents.

2000 Objectives: Monitor site conditions and close the site in Fall, 2000.

Costs: Program has spent $482,721.35 to date.

Whitefield Elementary School Remediation

1999 Accomplishments: Operated remediation system, tested replacement drinking water supply and connected new source to the school.

2000 Objectives: Complete Well Head Protection Plan, monitor drinking water quality for one (1) year, then close site.

Costs: Program has spent $206,739.08 to date.

Federal Facilities and Superfund Unit

In 1980, the US Congress established a "National Priorities List" of the worst hazardous substance sites in the country. Currently Maine has 12 sites on this list (the Saco Tannery Waste Pit site was taken off the list in 1999). The 12 sites are subject to federal, as well as state, law, regulations, policies and guidelines. Maine DEP plays an important role by identifying state standards, providing information to communities, and providing technical support. Federal law assures each state a role in remedy selection, but also imposes some serious requirements, including a cost share for the selected remedy and long-term operation and maintenance.

Maine DEP also works with the Department of Defense Environmental Restoration Program to clean up contamination from past activities at current and former military facilities in the state. We strive to keep Maine's cleanup sites high on the priority list for funding and resources. A list of current and former DOD property is available on the Division's Web page at: http://janus.state.me.us/dep/rwm/rem/download/DoDlist.htm

— Denise Messier, Unit Leader

Eastland Woolen Mill, Corinna

The DEP prepared and submitted to the U.S. Environmental Protection Agency (EPA) the Hazardous Ranking System (HRS) package for the site supporting the site's addition to the National Priorities List (NPL). On July 22, 1999, the site was listed in the Federal Register on the NPL (i.e., Remedial Superfund site list) and the site became eligible for federal remedial cleanup funds.

Building 21 demolition (late December, 1999)
Photo courtesy of R.F. Weston Corp.

In 1999 two (2) federal cleanup programs were initiated at the site: the standard remedial Superfund process and the Non-Time Critical Removal Action (NTCRA) process. The standard remedial Superfund process starts with Remedial Investigation/Feasibility Study activities and evaluates the long term cleanup of the site. By using the NTCRA process, the EPA can begin cleanup actions much faster. At this site, the U.S. Army Corps of Engineers (ACE) is working for the EPA to conduct both the Remedial Investigation/Feasibility Study (RI/FS) and NTCRA activities. In addition, several contractors and subcontractors are working for ACE and EPA at the site.

During the summer of 1999, contractors working for the EPA initiated data collection activities for the RI/FS

Dye house during demolition (mid-January, 2000)
Photo courtesy of R.F. Weston Corp.

reports. EPA/ACE's contractors developed and initiated a Phase 1 work plan. The RI data collection included the following activities: installation of boring and monitoring wells; collection and analysis of groundwater, surface water, residential wells, soil, and sediment samples; and completion of aquatic tests in the East Branch of the Sebasticook River. The site data collected in 1999 will be compiled, reviewed and data gaps identified and used to develop a phase 2 data collection for the 2000 field season, if deemed necessary. The collected RI/FS data will be and has been used to aid in planning actions under the NTCRA.

Also, during 1999, EPA/ACE's contractors initiated site activities for the NTCRA. Presently, activities planned and underway for the NTCRA include the following: Hazardous materials & asbestos abatement in the mill buildings, demolition of the mill buildings, relocation of the East Branch of the Sebasticook River, relocation of

the Route 7 bridge over the East Branch of the Sebasticook River and the bridge approaches, excavation & treatment of contaminated soils and sediments, and possible in situ treatment of contaminated soil at depth. Each of the NTCRA activities has a series of sub-activities to be completed that, in turn, must be sequenced and integrated with the other NTCRA activities in order to accomplish treatment of the contaminated soil.

Presently, site NTCRA activities being conducted are the abatement of hazardous materials and asbestos from the mill buildings and the demolition of the mill building. Several mill buildings have been razed. Additionally, EPA/ACE's contractors are working with many groups (such as the DEP, the Town of Corinna, the Corinna Coalition Committee, the Maine Department of Transportation, the Maine Historic Preservation Committee and several other State and Federal entities) to coordinate the relocation of the East Branch of the Sebasticook River, the Route 7 bridge over the East Branch, and the bridge approaches. All groups involved in the NTCRA activities are working together and committed to the cleanup of the site. The NTCRA activities are scheduled to be completed in 2001.

(Rebecca Hewett)

Removal of flooring from first floor of Building 4 (early February 2000) Photo courtesy of R.F. Weston Corp.

Building 4 demolition (early February 2000) Photo courtesy of R.F. Weston Corp.

Portsmouth Naval Shipyard

The Portsmouth Naval Shipyard (PNSY) is located on the northern shore of the Piscataqua River in the Town of Kittery, Maine. The shipyard, established as a United States naval shipyard in 1800, was primarily used to design, construct, repair, and overhaul submarines during the 1900s. Currently, the shipyard is involved in the conversion, repair and overhaul of submarines. The investigation and remediation at PNSY are complicated by extensive landfilling over the years. The 278-acre shipyard was originally 3 islands. Ninety acres are filled land including the 25-acre Jamaica Island Landfill (JILF). Effective May 31, 1994, the PNSY was listed on the National Priorities List. There are several Operable Units at the Shipyard encompassing various industrial areas: the JILF, the offshore area comprising the intertidal zones of the shipyard and the Piscataqua River in the vicinity of the shipyard.

The Defense Reutilization Marketing Office (DRMO), or DRMO Salvage Yard, is located on the southern shoreline of PNSY. The area consists of approximately 2 acres of filled land, which is currently used as a scrap yard. It was previously used to store refuse, including lead and nickel-cadmium battery elements, motors, typewriters, paper products, and scrap metal prior to off-site recycling or disposal. Former activities at the DRMO also included the recovery of lead from electric submarine batteries, an activity that resulted in high levels of lead in area soils. In 1993 approximately one half of the scrap yard was paved and the other half was covered with a Geosynthetic Clay Liner (GCL) cap, with 12 inches of soil cover, as an interim measure to prevent contact with the contaminated soil.

The DRMO shoreline was formerly covered with embankment rock (large granite riprap) and concrete keel blocks at a steep slope extending approximately 30 vertical feet below the low tide level. Despite this attempt to stabilize the shoreline, wave action of the river caused the shoreline to deteriorate due to scouring behind the large keel blocks. During an inspection of the PNSY shoreline by the Navy in June 1999, significant erosion was discovered along the shoreline of the Piscataqua River adjacent to the DRMO Salvage Area.

The Navy collected soil samples from along the top of the slope in late July 1999 and found lead concentrations in soil ranging from 0.5% lead to as high as 11% lead. The amount of soil that may have eroded into the river is unknown. To protect human health

and the environment from a further release of lead, an emergency removal action was implemented.

The Navy developed a shoreline stabilization plan in August with the input of DEP, the EPA and the public. On September 30, 1999 the exposed soil was covered with hydro-mulch as an interim erosion control measure. In October 1999 the Navy began the shoreline stabilization work.

Shoreline stabilization entailed the following activities:

DRMO shoreline after the stabilization work was completed (PNSY).

- Removed existing curb and fence
- Removed existing keep blocks and other debris
- Regraded existing embankment rock to form a level bench
- Covered existing soil surface with 3" of gravel
- Covered gravel layer with a layer of 16 oz. non-woven geotextile
- Covered geotextile with 6" of stone bedding
- Covered stone bedding with 6" intermediate layer of larger stone
- Final cover of 18" large surface rock
- Poured new concrete curb at top of slope and key in geotextile layer to curb
- Replaced fence

The shoreline stabilization work was completed in November 1999. Presently, the DEP does not consider this stabilization to be a permanent remedy as it has been installed only as an emergency measure. However, the Navy will evaluate its potential as a permanent remedy when the DRMO Feasibility Study is issued in November 2004.

As part of the Navy's Interim Record of Decision for Operable Unit 4 (OU4), (comprising the offshore areas of the shipyard), the Navy collected samples of sediment, mussel tissue and juvenile lobster tissue at 12 different sampling locations in September 1999. One of these locations was located offshore of the DRMO. The sediment and mussel samples collected immediately offshore of the DRMO were elevated for lead above samples collected at the closest upstream and downstream locations. Additionally, the lead concentrations detected in juvenile lobsters immediately offshore of the DRMO were 10 times higher than the lead concentrations detected in juvenile lobsters at the upstream and downstream sampling locations. It should be noted, however, that when the lobsters were processed the intestines were not removed. Therefore, the high lead concentrations may be reflective of the sediment within the intestine rather than any lead actually taken up into the lobster meat. The Navy is currently reanalyzing lobsters collected from this location with the intestines removed.

Other PNSY 1999 highlights

In May 1999 the Navy and USEPA, with the concurrence of DEP, signed an Interim Record of Decision (IROD) for OU4. OU4 includes areas offshore of the shipyard that were potentially affected by shipyard activities. The IROD requires the Navy to monitor juvenile lobster, mussels, and sediment at 14 monitoring stations around the shipyard as well as at four reference stations, both upstream and downstream of the shipyard. The first round of monitoring was completed in September 1999. The next round of monitoring is scheduled for April 2000. The interim monitoring program includes two years of quarterly baseline monitoring followed with semiannual monitoring.

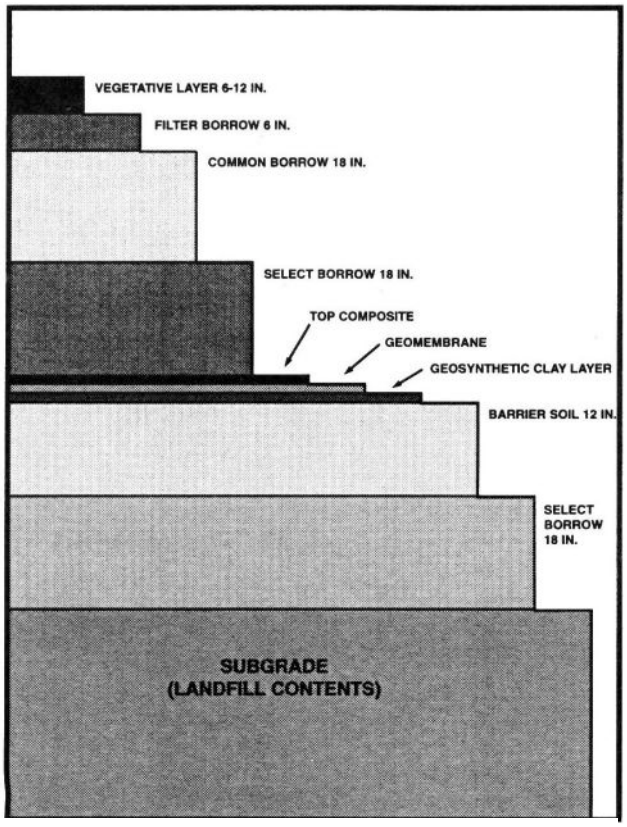
Also in May 1999, the Navy completed the MTADS (Multi-Sensor Towed Array Detection System) Survey of the Jamaica Island Landfill. The MTADS technology, originally designed to locate unexploded ordnance at military bombing ranges, was used to try and locate large concentrations of metal in the landfill that might indicate the presence of buried drums. The Navy selected potential locations for test pitting based on results of the MTADS survey. Test pitting will commence in February 2000. (*Iver McLeod)*

Former Loring Air Force Base, Limestone

1999 brought the signing of the last Record of Decision (Operable Unit 12) and closure of the last landfill at the former Loring Air Force Base. DEP will continue to work with the Air Force, Environmental Protection Agency, and local officials to oversee operation of active remedial systems, implement long term monitoring, and transfer ownership to private hands.

The 1999 capping of Landfill 3 (LF-3) is especially significant. Contaminated soil was consolidated from various cleanups across the base, saving time and money and providing subgrade material needed to properly drain the landfill. Closing the landfill is visible evidence of all of the work completed in the past several years.

The Landfill 3 cap is a composite construction. First, a layer of barrier soil, high in clay content as required by DEP rules, was placed over the subgrade fill. Then two hydraulic barriers (a 60-mil geomembrane with geosynthetic clay layer [GCL]), also known as a "sandwich filling," were installed. If wetted, the GCL is designed to swell into an impermeable substance further protecting the landfill contents. The geomembrane was carefully placed over the GCL by experts who applied it in sections and painstakingly welded the seams to create an impermeable cover over the 29-acre landfill. Next, a drainage composite was installed to carry away rainwater and snowmelt. The cap was topped off with soils suitable to support vegetation, fertilized and planted with grass seed. *(Naji Akladiss)*



Landfill cover system layers (Courtesy of WPI, Inc.)

Eastern Surplus, Meddybemps

The Final Remedial Investigation/Feasibility Study Reports (which includes the Human Health Risk Assessment and the Ecological Risk Assessment) and EPA's Proposed Cleanup Plan for the site were released for public review and comment. Additionally, a Phase I and a Phase II archaeological investigation and evaluation were conducted at the site. The archaeological investigations unearthed prehistoric Native American artifacts. As a result of these findings, the site is eligible to be listed on the national listing of significant archaeological sites.

Archaeological work in non-contaminated areas of the site

Eastern Surplus: northern portion of site, July 15, 1999

Eastern Surplus: 5000 year old hearth, July 15, 1999

Removal and disposal activities continued in 1999. These activities consisted of the removal and disposal of additional debris (metal junk, wood, etc.), the excavation and disposal of polychlorinated biphenyl (PCB) and volatile organic compound (VOC) contaminated soils, the installation of a groundwater extraction and treatment system (GWETS), and regrading the site. Future work planned for the site are the operation and evaluation of the GWETS, evaluation of chemical oxidation to enhance groundwater cleanup and a Phase III archaeological investigation (i.e., dig).
(Rebecca Hewett)

Archaeological work in contaminated areas

Northern VOC area, hearth feature found, July 21, 1999

Bucks Harbor Former Radar Tracking Station

At a public meeting in April 1999, the US Army Corps of Engineers proposed the formation of a Restoration Advisory Board (RAB) for the Bucks Harbor Former Radar Tracking Station Site. The purpose of the RAB would be to enhance information sharing and decision making with the community. A typical RAB consists of community volunteers, representatives of local businesses, and government officials (municipal, state, and federal) who meet to better understand the Corps activities, provide recommendations, and act as liaison between the Corps and the community.

The Bucks Harbor RAB met for the first time in December 1999 to discuss issues surrounding the installation of an alternate water supply for residents affected by the former Radar Tracking Station. (*I v e r McLeod)*

Defense Fuel Supply Point – Casco Bay – Harpswell

All investigative and remedial activities are now complete. During 1999 additional studies (test pitting, etc.) were performed along the overland pipeline, the site was landscaped (14 AST berms flattened), and a small hotspot of impacted soil was discovered and removed for off-site treatment and disposal. The Risk Assessment for marine sediments was reexamined to address local concerns. Negotiations continued between the DOD and Town of Harpswell regarding site improvement (non-environmental) issues. A Long Term Monitoring Plan was finalized and implemented. A site-wide GPS survey was performed to allow analytical results to be incorporated into Maine's GIS database program. Progress continues in preparation to transfer ownership of the site from the Navy to the Town of

Harpswell. *(Wilkes Harper)*

Saco Municipal Landfill Superfund Site – Saco

All planned remedial activities have been completed. In Area 2, a leachate treatment system for iron was constructed and the Operations & Maintenance Manual finalized; also, repairs to the Area 2 landfill cap were completed. The draft Feasibility Study (FS) and Interim FS were reviewed and comments issued. Wetlands Restoration was performed, and a Draft Wetlands Compensation Monitoring Plan was reviewed and comments issued. Pre-Record of Decision (ROD) sampling continues biannually, with the resulting data reports reviewed and comments issued. Proposed Site Institutional Controls were reviewed and comments issued. A Site Specific Ambient Water Quality cleanup level for arsenic was evaluated. Habitat Enhancement conceptual plans were developed. Sandy Brook Sediment Toxicity Program results were evaluated and the Report finalized. *(Wilkes Harper)*

O'Connor Junkyard Superfund Site - Augusta

All planned remedial activities have been completed. During 1999, both regularly scheduled and unplanned supplemental investigations were performed, to include additional studies of the Upland Marsh area, annual monitoring of Riggs Brook, quarterly monitoring of the site's groundwater, and monthly monitoring of selected groundwater wells in the Designated Area for PCBs. Reports resulting from each study were reviewed for comment. Repairs to areas marked by erosion were completed. The Site Hydrogeological Model was finalized. Issue of a ROD Amendment / Technical Impracticability Waiver was discussed and is ongoing. Design for the OU-2 Comprehensive Report was discussed and developed. Monitoring of the wetlands restoration area in ongoing.
(Wilkes Harper)

Army Guard Training Site – Auburn

Investigations continue into the potential impact of the historical use of the Site on the soils, groundwater, surface water and sediments of the two on site unnamed streams. Several areas of concern — refueling pad, OMS#2 (vehicle repair facility), soils downrange of the inactive firing range, and the active small arms firing range — were eliminated from further study after additional information was provided by the Army National Guard from previous investigations. Surface water and sediment sampling plans were finalized after a site walkover, and on-site sampling was performed by the Army National Guard in October. Off-site sampling by the DEP is pending the review of the results of the on-site study. Plans for engineering measures in the active firing range were discussed between the DEP and the Army Guard to restrict the leaching of lead into the groundwater and possibly migrating into the nearby unnamed stream. *(Wilkes Harper)*

LO-58 Nike Launch Site – Caribou

Investigations continue into the source and extent of trichloroethene (TCE) impact to an on-site drinking water well. Quarterly monitoring of the two on-site drinking water wells was performed throughout 1999. The DEP continued to maintain a filter system on the impacted well. A Sampling and Analysis Plan was finalized and soil gas and ground penetrating radar surveys were performed in June. Following the results of this study, a supplemental Sampling and Analysis Plan was developed and geoprobe operations were performed in October. The on-site drinking water well was eliminated from the quarterly monitoring program after four sequential rounds failed to detect any volatile organic compounds. *(Wilkes Harper)*

Naval Air Station, Brunswick

To gain a better understanding of the Eastern Plume, the EPA, U.S. Navy, and DEP joined in a cooperative effect to place aqueous diffusion samplers within floodplain and streambeds of Mere Brook and Merriconeag Stream. The Site 9 (Neptune Drive Disposal Site) Record of Decision was signed and the Long Term Monitoring Plan was finalized. Remedial actions were completed for Site 2, the Orion Street Landfill-South. Debris removal was performed at Site 15, Swampy Road Debris Site, and Site 16, Merriconeag Debris Site. *(Claudia Sait)*

Naval Computer & Telecommunications Station, Cutler

Active remediation began at a number of sites at the Cutler facility. Approximately 4,750 tons of contaminated soil was removed from the Fire Training Area. Another 12 tons of PCB contaminated soil was removed from the Construction Debris Area and 19.9 tons from the South Helix House. Additional soil removal is anticipated at all these sites. The Navy performed additional site investigation at the Fire Training Area, Construction Debris Area, and the Salvage Yard.
(Claudia Sait)

Two capacitors containing PCB's found at the Construction debris Area (Cutler)

Soil removal from the Fire Training Area. (Cutler)

Hows Corner, Plymouth

Hows Corner Superfund Site was a storage and transfer facility from 1965 to 1980 for the Portland Bangor Waste Oil Company. The site is located on a topographical high and groundwater flow from the site is radial. During 1999, the EPA and DEP worked with the PRP's consultant on the start of the remedial investigation at Hows Corner. Residential well water monitoring continues for area homes. *(Claudia Sait)*

Union Chemical Co., South Hope

The groundwater extraction & treatment system (GWETS) portion of the cleanup activities continued to operate through December 1999. At the end of December 1999, the GWETS was shutdown to begin a four (4) month rebound assessment of the treated site area. It is estimated that the combined treatment system (soil vapor extraction and groundwater extraction & treatment) removed a total of 9,608 pounds of volatile organic compounds (VOCs) from the soil and groundwater beneath the site.

Additionally, during 1999, potassium permanganate (25,874 pounds) and sodium permanganate (3,060 pounds) in liquid solution were injected into the ground through the existing on-site wells and a few new injection wells. The potassium and sodium permanganate compounds react with the remaining VOCs located below the ground surface to reduce them into non-hazardous compounds, such as salts. *(Rebecca Hewett)*

Additional Site Highlights

Loring Laundry Annex – Presque Isle

- The Sampling and Analysis Plan was finalized.
- Surface water and sediment sampling was performed in October.

Loring Communications Annex - Perham

- The Sampling and Analysis Plan finalized.
- Bedrock wells were installed in June.
- Groundwater from bedrock wells was sampled in October.

LO-13 NIKE Launch Site – Caswell

- Sampling and Analysis Plans was finalized.
- The Acid Neutralization Pit Area was sampled in June, to include catch basin sediments and drainage pathways soils away from the Pit area.
- Supplemental sampling of the over burden wells was accomplished in October.

LO-13 NIKE Control Site – Caswell

- The Sampling and Analysis Plans were finalized.
- In June, 3 bedrock wells were installed and developed, and 8 soil borings and soil sampling were performed.
- The first round of groundwater sampling (of 2 tentatively scheduled) was performed in October.

Winthrop Landfill Superfund Site, Winthrop

- The Post-closure Monitoring Plan was revised and implemented.

McKin Co. Superfund Site, Gray

- Mediation group stakeholders reached a settlement in principle.

Special projects and work groups

- GIS Users Group
- Environmental Risk Advisory Committee
- Natural Resource Damage Assessment Coordination with US Department of Interior
- Air Force Total Petroleum Hydrocarbon Working Group

Presentations and Outreach

- Conservation Commission Town of Brunswick
- Warren Girl Scouts
- State Science Fair Judge
- Georges Valley High school Science Fair Judge

Site Assessment and Support Services Unit

The Site Assessment & Support Services Unit administers the Voluntary Response Action Plan (VRAP) Program, the State Brownfields Program, the federal Site Assessment Program for EPA's CERCLA (the federal list of hazardous waste sites) sites, and conducts initial investigations, sampling, removal actions and routine monitoring for sites within the division's different programs. During 1999, the unit conducted a number of site assessment activities and presented education/outreach opportunities through our two EPA grants: the Core Program Cooperative Agreement (Voluntary Cleanup Portion) and the Multi-Site Cooperative Agreement II (MSCA II). The unit created and published the first two issues of the "Maine VRAP/Brownfields Newsletter" with funds from the Core Grant, and completed CERCLA assessments, Brownfields Site Assessments and Site Discovery Projects through our MSCA II grant.

Unit staff submitted 7 final site assessment reports to EPA in 1999: 2 Site Inspections, 2 Combined Preliminary Assessment – Site Inspections, 1 Site Discovery Report, 1 Brownfields Site Assessment and 1 Hazard Ranking System Package. Additionally, 4 sites were removed from the active CERCLA list following the recommendations of the unit, bringing the total number of sites archived through the EPA Archive Pilot to 42 sites.

Initial investigations were conducted at nine new sites. Follow-up investigations were completed at sites in Eastport and Madawaska. The unit also completed state-lead removal actions at sites in Littleton, Meddybemps, and Chelsea, and provided oversight of a number of private-lead sites. Routine sampling (quarterly or semi-annual) was completed at 23 sites to monitor impacts to drinking water supplies.

— Nick Hodgkins, Unit Leader

In 1999, the VRAP Program added 56 new sites, bringing the program total to 210 sites. Of these 210 sites, 45 were remediated and/or resolved to the Department's satisfaction in 1999, to bring the total number of sites resolved to 161 since the inception of the program in December 1993. Remedial actions were completed at an additional 9 sites, with final resolution anticipated during early 2000. Fifteen sites currently have remedial actions in progress. The other twenty-five sites are awaiting further investigation and/or the development of remedial plans. The VRAP Program received $40,025 in fees in 1999.

The first two issues of the "Maine VRAP/Brownfields Newsletter" were created and published in 1999. The newsletter reports on issues relevant to both state and federal efforts at voluntary cleanup and brownfields site. It also provides an opportunity to get EPA grant application information to the state's municipalities in a timely manner. The newsletter is currently sent to over 600 recipients, including municipal officials, environmental consultants, attorneys and lenders.

Some specific site highlights of 1999 include:

CP Siding-Mattawamkeag

The CP Siding project is located in Mattawamkeag, Maine. The property was the location of a former bulk oil facility located on a railroad siding. The facility had been leased by numerous oil companies since the 1940's. Overfills and leaks from aboveground and underground oil storage tanks and piping had led to significant contamination of soils and groundwater in the area.

The property owner applied for coverage of eligible costs under the Groundwater Cleanup Fund. After

CP Siding-Mattawamkeag; Site before remedial actions, looking southwest

CP Siding-Mattawamkeag; Site during remedial actions; looking northeast

receiving a determination that they were eligible for coverage, they began excavating petroleum contaminated soils under the direction of the VRAP. During late August and early September, 7629 tons of contaminated soil were removed from the site and processed by an approved asphalt batch plant.

CP Siding-Mattawamkeag; Re-grading after completion of remedial activities; looking southwest

In addition, two private dug wells that were impacted were replaced with bedrock wells. Samples from the replacement wells indicate that they have not been impacted by contamination migrating from the site. In an attempt to reduce the residual contamination in groundwater, an oxygen releasing compound (ORC) was added after excavation. The groundwater is sampled routinely at private residences and monitoring wells to insure that there are no further impacts to private drinking water supplies and to monitor the effectiveness of the soil removal and ORC addition.

The site will continue to be monitored on a periodic basis until the Department determines that the contamination does not pose a significant threat to any receptors.

Former Bridgton Knitting Mill-Bridgton

The Former Bridgton Knitting Mill is located on Route 302 in Bridgton, Maine. The property consists of three parcels totaling approximately 70 acres; two parcels were largely undeveloped, while the third parcel was improved by the Bridgton Knitting Mill building, a 112,000 square foot facility. Malden Mills Industries, Inc., had ceased manufacturing operations at the facility, leaving the property virtually vacant except for minor warehousing by Malden Mills.

Environmental site assessments at the property identified two environmental issues at the property. On one parcel, a small amount of petroleum contamination soil was found and required removal actions. On another unused parcel, solid waste and assorted demolition debris had been deposited by “midnight dumpers” not associated with the knitting mill facility. The petroleum soil was removed and taken to Commercial Recycling Systems facility in Scarborough for recycling; the solid waste/ demolition debris was removed and disposed at an appropriate disposal facility.

Upon issuance of the VRAP Certificate of Completion, the Bridgton Mills Development Corporation, as purchaser, leased portions of the building to various entities, including Dielectric Communications, manufacturers of antenna towers used in television, radio, and telephone signal transmissions. The redevelopment of this property brought many new jobs to the area, alleviating some of the economic distress caused by the closure of Malden Mills.

Fairfield Center Project

The Fairfield Center Project was assigned to unit personnel for the purpose of assisting the Department of Human Services in its investigation of the elevated incidence of cancer and other illness found to exist in local residents. Staff were tasked with investigating whether current or past activities performed in this area (i.e. industries or businesses) might be contributing to health problems in the area.

Staff attempted to determine past and/or current potential sources of environmental contamination through historical research and interviews with local residents. Although the area is serviced by public water, some private wells did exist in the study area. Many of these wells were tested for a wide range of contaminants including volatile organic compounds, semivolatile organic compounds, pesticides, and metals.

No obvious ongoing problems/concerns were discovered. Groundwater in local wells was generally found to meet drinking water standards and no ongoing sources of significant environmental contamination were observed in Fairfield Center.

Unit staff also assisted other Department technical staff with the preliminary investigation of the Greene Road Landfill Site.

Work on this project is ongoing.

Great Northern Paper Mill #1 - Millinocket

The Great Northern Paper Mill #1 located in Millinocket was placed back on the active CERCLA list in late 1998 after the United States Office of the Inspector General (OIG) determined the site should not have been removed from the list. The site has been an active mill producing paper products since the early 1900’s.

In July 1999, MEDEP staff began an investigation at the mill to determine if hazardous substances had been released to the environment. This required sampling in areas of the site where waste could have been spilled or disposed as well as the pathways that

Great Northern Paper Mill #1-Millinocket; view from Millinocket Stream

waste may have migrated through. Thirty-six samples were collected from soil, groundwater and sediment on the site, adjacent to the site and downstream of the site. Samples were analyzed for various metals, volatile organic compounds, semi-volatile organic compounds, PCBs, pesticides and dioxin. Isolated areas of contaminants were detected in groundwater onsite; these areas are monitored by Great Northern Paper and results are submitted to the DEP Solid Waste Division. Samples collected from the nearby water bodies indicate these contaminants are not migrating from the site. Based on the results of this investigation this site will be removed from the CERCLA list in early 2000.

Site Discovery Project

Through the Site Discovery Project, the unit completed assessments at four new sites utilizing EPA funding. These included sites in South Bristol, Presque Isle, Corinna, and Brunswick.

Mt. Katahdin viewed from the Great Northern Paper Mill Property

Landfill Closure and Remediation Program

The Landfill Closure and Remediation Program has continued in its efforts to close all unlicensed municipal landfills. The Program received additional bond funding in 1999. A $2.5 million bond was approved by voters in November 1999 and is available to cover state reimbursement obligations for 1999 site closures.

As of December 31, 1999, 361 of the 402 municipal landfills identified in Maine have been officially closed . Of the remaining 41 sites, 24 are listed as inactive, 16 as active and 1 as partly closed. During the 1999 calendar year, a total of 19 landfill sites undertook or completed closure work: 8 sites completed closure work and the remaining 10 sites reached substantial completion, but have final certification pending. One site will continue with closure work in 2000. Based on these figures, approximately 90% of the state's municipal landfills have been successfully closed under this program.

Any remaining sites are expected to be either licensed operating sites (15) not scheduled for closure until after 2000, or non compliance sites (18) that did not complete a specified site closure under DEP supervision and which may be subject to later enforcement action by the Department.

The Landfill Closure and Remediation Program completed its final year of closure activities in 1999. Any subsequent closure work will be ineligible for any state cost sharing. The program will continue to assist with remedial actions at closed landfill sites, conduct post-closure inspections and review post-closure monitoring reports.

— Ted Wolfe, Unit Leader

Program Changes

As a result of new legislation in 1999, adjustments have been made to the state cost share for remedial actions at closed landfill sites. Municipal remediation costs associated with wells or structures constructed before December 31, 1999 will be reimbursed by the state at a 90% rate. However, remediation costs associated with wells or structures built after December 31, 1999 will be reduced to 50% provided the municipality has taken "reasonable steps" to anticipate and abate threats posed by the landfill. The Department intends to define "reasonable steps" through the rule making process.

Municipalities are also required to record a deed affidavit as a way to notify future property buyers of the presence of a landfill on a particular land parcel.

Funding Status

Maine voters have approved 10 of 11 landfill closure bonds totaling $75 million. As of December 31, 1999, $72.5 million in bond funds have been made available to the DEP. An additional $3 million in general funds were also made available to the program in 1998.

The most recently approved bond for $2.5 million will be applied towards 1999 closure activities but will not cover all closure activity obligations.

Closure/Reimbursement Status

Completed closures credited to 1999 included the municipalities of Aurora, Bangor (demo debris site), East Machias, Hartford/Sumner, Lisbon, Norridgewock, and Pleasant Ridge Plantation. Sites that reached substantial completion as of December 31, 1999, but have not certified the completion of the project, include Regional Waste Systems (RWS), Westbrook (Sandy Hill site), Sanford, Northern Aroostook Regional Incinerator Facility landfill (NARIF), Augusta Sanitary District landfill, Hartland, North Haven, South Portland (demo. debris site), Tri-Community Sanitary Landfill, and Wilton (ash site). Westbrook (Rocky Hill demo. debris site) initiated work in 1999, to be finished in 2000 without continued state cost support.

The average cost per acre for landfill closures in 1999 was approximately $100,000/acre. Actual costs varied between $20,000/acre for minimal clay covers and up to $390,000/acre for composite cap covers.

Although most landfill closures, including planning, construction and final certification, extend over two or more years, activities occurring during calendar year 1999 accounted for approximately $4.5 million in costs. The state cost share amounted to approximately $3.4 million for 1999 activities.

Selected Project Highlights

North Haven: The Town of North Haven, located seven miles from the mainland in Penobscot Bay, completed its landfill closure in the summer of 1999. Prior to the initiation of the project, the town was required to relocate its waste recycling center and construct a new transfer station. The subsequent landfill closure system then included a flexible membrane liner of seamed, low density polyethylene sheets, protected by geotextile layers and a top layer of crushed rock. Native materials on the island were used whenever possible. Other materials were transported to the island using the State ferry service. In order to stabilize the landfill and protect

North Haven Landfill Closure – gabion wall Construction.

North Haven Landfill Closure – empty rock baskets prior to filling and installation.

North Haven Landfill – completed gabion wall.

adjoining wetlands, the closure included a gabion wall system at the base of the landfill slope. Total closure costs were approximately $940,000 with a state cost share of approximately $705,000. *(Roy Krout)*

Augusta Sanitary District: Final construction, consisting of placement of a composite (clay/flexible membrane layer [FML]) cover system, was completed at this 7 acre municipal treatment plant sludge site in 1999. Work was a culmination of site environmental and geotechnical evaluations, as well as preliminary site work preparation beginning in 1992. This was a challenging project due to the inherent unstable nature of the sludge materials. In 1998, the original 12-acre landfill was consolidated with inert materials into a 7-acre site, the wastes covered with a temporary cover and

Augusta Sanitary District – Newly constructed cover system.

construction of an earthen bulkhead at the toe of the landfill to aid in final stabilization of the wastes. A stability analysis was completed over a two-year period to assure that the project was ready to proceed in 1999 with placement of the final cover system. Final cover system construction in 1999 was also adversely affected by hurricane and severe storm impacts. Total project costs were $2,477,956.60 with a State share of $1,858,467.40. These costs also included expenditures for closure of a residuals area in 1995. *(Robert Birk)*

Hartland: This 7-acre landfill was closed in 1999 using a composite cover system design consisting of clay/ FML. Site investigations preceded closure due to concerns over industrial waste history, close proximity to several nearby homes, and potential developable nature of adjacent land. Overall costs were $1,040,000 with a State share of $780,000. *(Robert Birk)*

Regional Waste Systems (RWS): This site was substantially completed in late 1998, however, final completion was not accomplished until June 1999. This 40- acre site is divided into two landfill areas containing baled waste. A previous cover system was reworked prior to the installation of a composite cover. Due to high production of methane, a gas collection and flare station system was developed. Leachate is being handled by a man-made wetland treatment system. Total project costs, including work originally initiated in the early 1990's, approached $7.8 million with a state cost share of $5.9 million. *(Ted Wolfe)*

Sanford (Rushton Street Landfill): This project closed under the project management of the Uncontrolled Sites Program. The Landfill Closure Program collaborated by providing funding to the Town of Sanford to assist with its portion of the project associated with normal closure and capping of a municipal solid waste landfill. Due to its nature as a designated uncontrolled hazardous substance site, costs associated with additional remedies

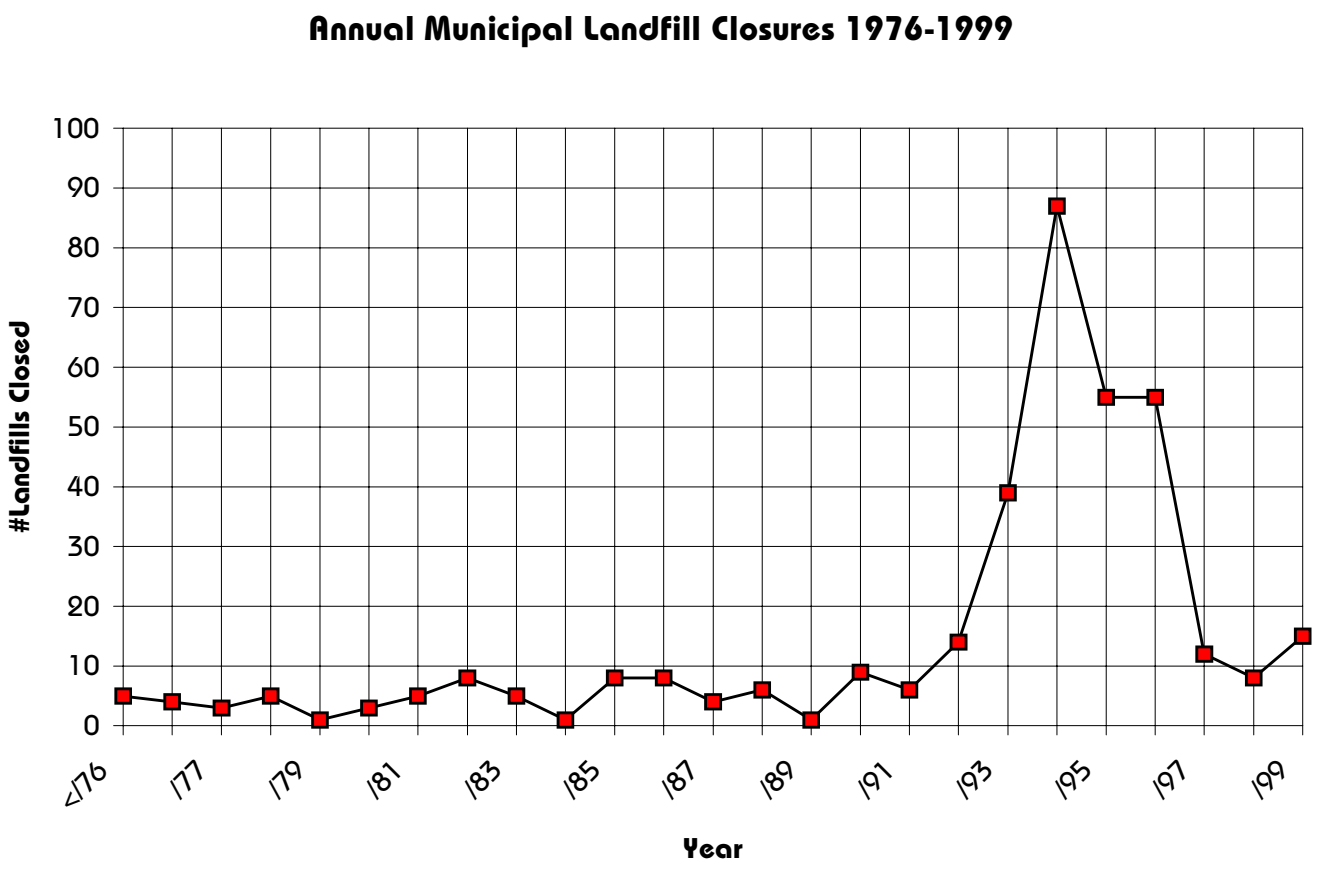
beyond the typical closure cap resulted in total project costs of $1.8 million. State cost share expenses were capped at a maximum of $980,000. *(Ted Wolfe)*

Remedial Investigations:

Winter Harbor Landfill: Department staff completed post closure monitoring in the vicinity of the closed landfill, which revealed VOC contamination at or below action levels in four residential wells. Filter systems were provided at 90% State cost, and a site assessment contract with GZA, Inc. has been implemented. Remedial investigations indicate that there are high levels of tetrachloroethene (PCE) contamination in the nearby landfill monitoring wells. In addition to the affected and at-risk residential wells, there is concern for a new public water supply well located 2,000 feet downgradient from the site. Use of the landfill by industry and/or government facilities is suspected. This site will likely require additional remedial investigations and construction efforts in the years ahead. *(Robert Birk)*

Corinna Landfill: Department staff continued to monitor both landfill and area residential wells at this closed, high-risk landfill site. Closed with a composite cover system in 1996, the monitoring wells are still indicating high levels of VOC contamination of industrial origin. A number of the residential wells have shown low, intermittent levels of organic compounds. There is also concern for continued residential growth in the area. *(Robert Birk)*

Mechanic Falls Town Landfill: The Department continued with a Phase II hydrogeological investigation through a contract with HLA, Inc. Although the site was closed with a "Reduced Procedure" cover, the site is thought to possibly pose risks to several nearby water supply wells. Several of these wells have had intermittent, low levels of VOC concentrations. The landfill also sits directly across the street from the *Maine Wood Treaters Site*. Information gained from the landfill investigations will prove useful to both projects. *(Robert Birk)*



Annual landfill closures from 1976 through 1999. The establishment of the Landfill Closure Program in 1989 resulted in a dramatic increase in closure activity during the 1990's.

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF REMEDIATION AND WASTE MANAGEMENT
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In Retrospect...

Before Remedial Action *During Remedial Action* *Maple Street Park Today*

The process to transform the Brewer Junkyard Site (photo at left) into today's public recreation park (photo, right) required hundreds of hours of investigation, coordination, negotiation and eventual remediation. Located on Spring Street in Brewer, Maine, the former junk-yard, now the community's Maple Street Park, encompasses approximately six acres and is situated between an industrial park and a residential neighborhood. Ballfields, roller skate pad & ramps, exercise paths, picnic areas and patios, and public parking demonstrate the beneficial reuse of what was once a hazard to the community's health.

The Site had been used for industrial purposes since the turn of the century. A tannery and a wool processing plant first occupied the Site; the Brewer Junkyard facility was operated from the 1930's to 1991.

For more detailed information concerning the site's history and remedial operations, see the Division's 1996 Annual Report.

— Kathy Niziolek